

REMARKS

Applicant thanks the Examiner for the detailed Office Action.

This communication is in response to the nonfinal Office Action dated Nov. 11, 2008, in which FIG. 3 and FIG. 6 were objected, to claims 1-20 were objected to, claims 3 and 11-20 were rejected under 35 U.S.C. 112, first paragraph, claims 7-20 were rejected under 35 U.S.C. 112, second paragraph, claims 8-20 were rejected under 35 U.S.C. 101, claims 1-2 and 4-6 would be allowable if rewritten or amended to overcome the objections set forth in the Office action, and claim 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph.

Objections to FIG. 3 and 6

The drawings filed August 9, 2008 were objected to because "the outputs which labeled "K-" outputted from the data splitter should be labeled "K-BITS" and the output which labeled "M-BIT" from the data stream combiner should be labeled "M-BITS" as shown in Fig. 3. Further, in Fig. 6, the outputs which labeled "M-BITS" from both the forward and conjugate counters should be labeled "K-BITS.""

In response, FIG. 3 is amended herein to label the outputs from the data splitter as "K-BITS" and to label the outputs from the data stream combiner as "M-BITS" and FIG. 6 is amended herein to label the outputs from the forward and conjugate counters as "K-BITS." Thus, amendments of FIG. 3 and FIG. 6 that are recommended by the Office Action are made herein, and the amendments herein to FIG. 3

and FIG. 6 overcome the objections to FIG. 3 and FIG. 6. Therefore, Applicant requests withdrawal of the objections to FIG. 3 and FIG. 6.

Objections to claims 1-20

Per claim 1

The Office Action stated "Claim 1, last fifth line, "counter;" should be "counter; and"." In response, the fifth to the last line of claim one is amended herein to add "and" as recommended by the Office Action. Therefore, Applicant requests withdrawal of the objection to claim 1.

Per claim 3

The Office Action stated "Claim 3, lines 2-3, "the pulse positioner further comprises: a pulse positioner operably coupled to" should be "the pulse positioner is operably coupled to"." In response, claim 3 is replaced herein with matter that is supported by FIG. 6.

Per claim 5

The Office Action stated "Claim 5, line 3, "pulses" should be "pulse positions"." In response claim 5 is amended herein to add "position" after "pulse" as recommended by the Office Action. Therefore, Applicant requests withdrawal of the objection to claim 5.

Per claims 2, 4 and 6-7

The Office Action stated "Claims 2, 4 and 6-7 are objected to because they all depend from the objected precedent claim 1." Claim 1

is amended herein to overcome the objection. Applicant requests withdrawal of the objection to claims 2, 4 and 6-7.

Per claim 8

The Office Action stated "Claim 8, line 3, "system comprising" should be "system, said method comprising"; line 5, "sets;" should be "sets; and"; lines 7 and 14, "transmission" should be "data" transmission"; line 17, "k-bit pulse" should be "k-bit representative pulse"; and line 18, "space," should be "space, and"."

In response, the preamble of claim 8 is amended herein to delete "for transmitting mass quantities of digital data through a data transmission channel at high rates of speed in a communication system." In response, line 5 of claim 8 is amended herein to add "and" at the end of the line. In response, lines 7 and 14 of claim 8 are amended to change "transmission" to "data transmission". In response line 17 of claim 8 is amended herein to replace "pulse" with "representative pulse". In response, line 17 of claim 8 is amended herein to add "representative" between "k-bit" and "pulse." In response, line 18 of claim 8 is amended herein to add "and" at the end of the line." As a result of the amendments herein to claim 8 as recommended by the Office Action, the objections to claim 8 are overcome. Therefore, Applicant requests withdrawal of the objection to claim 8.

Per claims 9 and 10

The Office Action stated "Claims 9 and 10 are objected to because they both depend from the objected precedent claim 8." Claim 8 is

amended herein to overcome the objections. Thus, Applicant requests withdrawal of the objection to claims 9 and 10.

Per claim 11

The Office Action stated "Claim 11, line 4, the word "against" is suggested change to "with"." In response, claim 11 is amended herein to replace "against" with "to" as recommended by the Office Action. Claim 11 is supported by FIG. 3-4 and 6 and paragraph 45-49 and 51-53. Therefore, Applicant requests withdrawal of the objection to claim 11.

Per claim 14

The Office Action stated "Claim 14, line 2, "the generating positive slope staircase signals for leading edge" should be "generating the positive slope staircase signal for each modulated edge of the" and line 3, "signal further comprises" should be "signals further comprises"." In response claim 14 is amended herein to replace "the generating positive slope staircase signals for leading edge" with "generating the positive slope staircase signal" as recommended by the Office Action. Therefore, Applicant requests withdrawal of the objection to claim 14.

Per claims 12-13 and 15-20

The Office Action stated "Claims 12-13 and 15-20 are objected to because they are either directly or indirectly depended from the objected precedent claim 11." Claim 11 is amended herein to overcome

the objections as recommended by the Office Action. Therefore, Applicant requests withdrawal of objection of claims 12-13 and 15-20.

Rejection of claims 3 and 11-20 under 35 U.S.C. 112

Claims 3 and 11-20 were rejected under 35 U.S.C. 112, first paragraph, “as failing to comply with the enablement requirement. The claim(s) contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.”

Per claim 3

The Office Action stated “The amended claim 3 recites the pulse positioner is coupled to the demultiplexer through three lines. The amended claim 3 recites the pulse positioner is coupled to the demultiplexer through three lines.” The rejected requirements of claim 3 is herein replaced with “the digital-to-analog converter is operably coupled to the clock.” Applicant requests withdrawal of the rejection of claim 3 under 35 USC 112.

Per claims 11-20

The Office Action stated:

“the amended claim 11 recites a step of generating a leading edge digital pulse width modulated signal, wherein a reference staircase is of positive slope having the same number of steps and occupying the same intra sample frame; and the amended claim 15 recites a step of generating a third pulse width, which is different and larger, compared to forward and conjugate pulse code widths which either raised

new matter was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.”

Applicant notes that claims 11 and 15 are supported by paragraph 48 of the specification and FIG. 4, which provide detail that is sufficient to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant requests withdrawal of the rejection of claims 11-20 under 35 U.S.C. 112, first paragraph.

Rejection of claims 7-20 were rejected under 35 U.S.C. 112

Claims 7-20 were rejected under 35 U.S.C. 112, second paragraph.

Per claim 7

The Office Action stated: “Claim 7 recites “wherein the system recombines the forward and conjugate pulse positions into a digital output” is vague and indefinite because the precedent claim 1 did not recite the combination of the forward and conjugate pulse positions.” In response, claim 1 is amended herein to require “wherein the signal has combined forward and conjugate pulse positions” which is supported by FIG. 2. Applicant requests withdrawal of the rejection of claim 7 under 35 USC 112, second paragraph.

Antecedent basis per claims 8, 11, 15, 16 and 18

The Office Action stated: “Claim 8 (line 18), claim 11 (lines 5-6, 8-9, 9, 11, and 12), claim 15 (lines 2 and 5), claim 16 (lines 2-3 and 3-4),

and claim 18 (line 2), the phrases "the same space", "the same intra sample time span", "the same number of steps", "the digital pulse width modulated signals", "the positions", "the forward and conjugate pulse", "the forward and conjugate pulse code widths", and "the forward and conjugate pulses" all lack antecedent basis."

Per claim 8

In response claim 8 is amended herein to replace "the" with "a" before "same space" which overcomes the rejection under 35 U.S.C. 112 because of lack of antecedent basis. Applicant requests withdrawal of the rejection of claim 8 under 35 USC 112, second paragraph.

Per claim 11

In response claim 11 is amended herein to replace "the" with "a" before "same" which overcomes the rejection under 35 U.S.C. 112 because of lack of antecedent basis. Applicant requests withdrawal of the rejection of claim 11 under 35 USC 112, second paragraph.

In response claim 11 is amended herein to require "generating a position indicating pulse for each modulated edge of the tailing edge and leading edge of the digital pulse-width modulated signals, yielding a plurality of pulse positions."

Applicant cannot locate the phrase "the digital pulse width modulated signals" in claim 11.

Per claim 15

In response, claim 15 is amended herein to delete the requirement of "the forward and conjugate pulse code widths" which

overcomes the rejection of claim 15 under 35 U.S.C. 112 because of lack of antecedent basis. Applicant requests withdrawal of the rejection of claim 15 under 35 U.S.C. 112, second paragraph.

Per claims 13 and 18

In response, claims 13 and claim 18 are amended herein to require “forward and conjugate positioned pulses” which overcomes the rejection of claims 13 and 18 under 35 U.S.C. 112 because of lack of antecedent basis. Applicant requests withdrawal of the rejection of claim 13 and 18 under 35 U.S.C. 112, second paragraph.

Per claim 8

The Office Action stated: “The last two paragraphs of claim 8 lacks connection or cooperation of the precedent steps and “k-bit” is undefined.”

In response, claim 8 is amended herein so that the second-to-the-last paragraph of claim 8 requires “wherein a first representative pulse of the forward pulse position is positioned in a forward manner and a second representative pulse of the conjugate pulse position is positioned on a conjugate pulse within a same space” and the last element of claim 8 also requires “wherein a thin pulse of the forward pulse position is used for forward pulse position coding and a relatively thicker pulse of the conjugate pulse position is used for conjugate pulse position coding.” Applicant notes that the last two paragraphs of claim 8 require “second representative pulse of the conjugate pulse position is positioned on a conjugate pulse,” “forward pulse position coding” and “conjugate pulse position coding.” These aspects are closely related to

the extent of being in “connection or cooperation of the precedent steps.” In particular, the “second representative pulse of the conjugate pulse position is positioned on a conjugate pulse position,” “forward pulse position coding” and “conjugate pulse position coding” aspects of the last two paragraphs of claim 8 are closely connected to the extent of being in “connection or cooperation of the precedent steps” to “encoding forward and conjugate pulse positions over the data transmission channel” of claim 8.

In addition, claim 8 is amended herein to delete “K-bit.”

The amendments herein to claim 8 overcome the rejection under 35 U.S.C. 112, second paragraph. Claim 8 is supported by FIG. 3-4 and 6 and paragraphs 45-49 and 51-53 of the specification. Applicant requests withdrawal of the rejection of claim 8 under 35 U.S.C. 112, second paragraph

Per claims 9 and 10

The Office Action stated: “Claims 9 and 10 are rejected to because they both depend from the rejected precedent claim 8.”

The amendments herein to claim 8 overcome the rejection under 35 U.S.C. 112, second paragraph. Applicant requests withdrawal of the rejection of claims 9-10 under 35 U.S.C. 112, second paragraph.

Per claim 11

The Office Action stated: “Claim 11, lines 4-5 and 14-15, clarify the differences of “a negative slope linear staircase signal” and “a negative slope staircase signal”;” Claim 11 is amended herein to require “negative slope staircase signal” rather than “negative slope

linear staircase signal” which overcomes the rejection of claim 11 under 35 U.S.C. 112, second paragraph. Applicant requests withdrawal of the rejection of claim 11 under 35 U.S.C. 112, second paragraph.

The Office Action stated: “lines and 18-19, also clarify the differences of “a leading edge digital pulse width modulated signal” and “a leading edge digital pulse width modulated signal”.”

In response, claim 11 is amended herein to require “leading edge digital pulse-width modulated signal” which overcomes the rejection of claim 11 under 35 U.S.C. 112, second paragraph. Applicant requests withdrawal of the rejection of claim 11 under 35 U.S.C. 112, second paragraph.

Per claims 12, 13, 15 and 18

The Office Action stated: “Claims 12, 13, 15 and 18 are vague and indefinite because they all lack connection or cooperation with the precedent claim 11.”

Per claim 12

Claim 12 requires “a thin pulse of the forward positioned pulse is used for forward pulse position coding and a relatively thicker pulse of the conjugate positioned pulse is used for conjugate pulse position coding.” Applicant notes that claim 11 requires “multiplexing the plurality of positions into forward and conjugate positioned pulses of different pulse widths.” These aspects of claim 11 and 12 are closely related to the extent of being in “connection or cooperation of the

precedent steps.” In particular, the “forward ... conjugate positioned pulse” and the “conjugate positioned pulse” aspects of claim 11 are closely connected to the extent of being in “connection or cooperation of the precedent steps” to “forward pulse position coding and ... conjugate pulse position coding” of claim 12. Applicant requests withdrawal of the rejection of claim 12 under 35 U.S.C. 112, second paragraph.

Per claim 13

Claim 13 requires “forward and conjugate positioned pulses.” Applicant notes that claim 11 requires “multiplexing the plurality of positions into forward and conjugate positioned pulses of different pulse widths.” These aspects of claim 11 and 13 are closely related to the extent of being in “connection or cooperation of the precedent steps.” In particular, the “forward and conjugate positioned pulses” and the “conjugate positioned pulse” aspects of claim 11 are identical to “forward and conjugate positioned pulses” of claim 13. Applicant requests withdrawal of the rejection of claim 13 under 35 U.S.C. 112, second paragraph.

Per claim 15

Claim 15 amended herein to require “charging a capacitor with a constant current source through a programmable timing generator controlled high frequency switch” which is supported by paragraph 49 of the specification. Applicant requests withdrawal of the rejection of claim 15 under 35 U.S.C. 112, second paragraph.

Per claim 18

Claim 18 requires “forward and conjugate positioned pulses.” Applicant notes that claim 11 requires “multiplexing the plurality of positions into forward and conjugate positioned pulses of different pulse widths.” These aspects of claim 11 and 18 are closely related to the extent of being in “connection or cooperation of the precedent steps.” In particular, the “forward and conjugate positioned pulses” and the “conjugate positioned pulse” aspects of claim 11 are identical to “forward and conjugate positioned pulses” of claim 18. Applicant requests withdrawal of the rejection of claim 18 under 35 U.S.C. 112, second paragraph.

Per claim 14

The Office Action stated: “Claim 14, the charging step is also vague and indefinite since the precedent claim 11 did not include the subject matter of “high frequency switch”.”

Claim 14 as amended herein does not include “the subject matter of “high frequency switch”” and claim 14 is amended herein to require “charging a capacitor with a constant current source” which is supported by paragraph 49 of the specification. Thus, the rejection of claim 14 under 35 U.S.C. 112, second paragraph is no longer applicable. Applicant requests withdrawal of the rejection of claim 14 under 35 U.S.C. 112, second paragraph.

Per claim 15

Claim 15 amended herein to require “charging a capacitor with a constant current source through a programmable timing generator controlled high frequency switch” which is supported by paragraph 49

of the specification. Applicant requests withdrawal of the rejection of claim 15 under 35 U.S.C. 112, second paragraph.

Per claims 17 and 19-20

The Office Action stated: “Claims 17 and 19-20 are rejected to because they are either directly or indirectly depended from the rejected precedent claim 11.”

Claim 11 is amended herein to overcome the rejection of claim 11 under 35 U.S.C. 112, second paragraph. Applicant requests withdrawal of the rejection of claims 17 and 19-20 under 35 U.S.C. 112, second paragraph.

Rejection of claims 8-20 under 35 U.S.C. 101

Claims 8-20 were rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. In consideration of the Examiner Interviews on Feb. 18 and 20, 2009, claims 8-20 as amended herein satisfy 35 U.S.C. 101 as “(1) be tied to another statutory category (such as a particular apparatus.” Therefore, Applicant requests withdrawal of the rejection of claims 8-20 under 35 U.S.C. 101.

CONCLUSION

Applicant believes this reply is fully responsive to all outstanding issues and places the application in condition for allowance. If this belief is incorrect, or other issues arise, the examiner is encouraged to contact the undersigned at the telephone number listed below.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Michael G. Smith".

Dated: 22 February 2009

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